

REMARKS

Applicants appreciate the detailed examination evidenced by the Office Action mailed May 20, 2004 (hereinafter the Office Action). Claims 1, 10, 13, 14, 16, and 18-21 have been amended. Applicants submit that the pending claims are patentable over the cited references for the reasons provided below.

Independent Claims 1, 20, and 21 are Patentable Over Papierniak in View of Davis

Claims 1-8, 10-11, 13, and 20-21 are rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,169,997 to Papierniak et al. ("Papierniak") in view of U.S. Patent No. 5,918,229 to Davis et al. ("Davis").

The background section of the specification explains that "it is common for storage systems to optimize block layout on the physical media according to monitored disk access patterns", and that a storage system can include a "[u]sage monitor 310 [that] tracks which storage blocks are requested most often", and a "layout optimizer 320 [that] uses this data to optimize the layout of data on the physical devices 220." (Specification, page 4, lines 10-13). However, the specification explains that a potential "drawback to the prior art approach is that it relies on observed access patterns", and that in "complex systems, it can be compute [sic] intensive and error-prone to detect such patterns." (Specification, page 5, lines 3-4).

In contrast, amended independent Claim 1 recites:

1. (Currently Amended) A method of storing content in a computing network, comprising:
receiving hints that comprise an indication of anticipated relationships among files; and
using the received hints to allocate storage for the files.

Accordingly, hints are received that comprise an indication of anticipated relationships among files, and the hints are used to allocate storage for the files. For example, the specification describes an exemplary file system as follows:

Fig. 4 illustrates a file system 400 that manages 420 a storage system, such as the storage system 300 described above, by transmitting an indication of the anticipated use of the data within a file to the layout optimizer 450. The layout optimizer 450 then considers this information when allocating storage 220.

(Specification, page 10, line 28 - page 11, line 1, emphasis added). Such hints may be developed by "[c]ontent management systems [that] accumulate substantial information about expected use of a web site", where, for example, "within a web page, content management systems can infer which elements will tend to be viewed together." (Specification, page 11, lines 15-17). The specification describes an exemplary embodiment of how hints may be received from a content management system and used as follows:

Fig. 6 illustrates an improvement to the prior art. Arrow 620 illustrates the content management system passing "hints", in addition to the file, to a request optimizer 610 of file system 600. The storage schedulers (such as layout optimizer 640, for example) which are used by prior art storage systems account for many factors when scheduling block retrieval. The present invention defines a straightforward mechanism for supplying the hints from content management systems to these storage schedulers, where these hints are then used as input by the storage schedulers to their scheduling decisions.

(Specification, page 12, lines 11-17).

In rejecting Claim 1, the Office Action states that "Papierniak teaches ... 'receiving hints regarding relationships among files' at Fig. 5 and col. 7, line 62 - col. 8, line 3" However, Applicants respectfully submit that Papierniak does not disclose receiving hints that comprise an indication of anticipated relationships among files, but instead teaches monitoring actual disk access patterns at a web site, as is described in the Abstract of Papierniak.

Applicants respectfully submit that the Office Action at page 2 appears to have erroneously interpreted the description of records at Cols. 7-8 of Papierniak as being the "hints" recited in Claim 1. However, Papierniak describes that the records are generated by querying server logs to determine what web pages were accessed and when. For example, Papierniak recites that "FIG. 3 depicts a process of generating access status data records for web page file 210 having a particular web page layout ...", and, with regard to step 402 of FIG. 4, "utility application 112 collects Internet data stored in server logs (104.1, 104.2, 104.3, and 104.4) via Intranet 107." (Papierniak, Col. 6, lines 20-23 and 42-44).

Accordingly, Applicants respectfully submit that Papierniak teaches developing records based on observed access patterns. Papierniak does not describe or suggest receiving

hints that comprise an indication of anticipated relationships among files, as is recited in amended Claim 1.

Moreover, as conceded on page 2 of the Office Action, Papierniak does not disclose "using ... received hints to allocate storage for ... files". However, the Office Action goes on to reject Claim 1 on the basis that "Davis teaches using files relationships structure, the directory structure, and file inode map to allocate storage for files at Fig. 3 and col. 8, line 60 - col. 9, line 9." (Office Action, page 2). This portion of Davis cited by the Office Action describes that "directory entries" include "stream descriptors" which are used to "locate and retrieve ... 4 kilobyte pages in the addressable shared memory space 20 that constitute File 1", and that other "files are retrieved and constructed from the addressable shared memory space 20 in the same fashion." Accordingly, Davis describes retrieving pages from a memory using a file directory.

Applicants respectfully submit that it is improper to combine Papierniak with Davis. Papierniak discloses that observed access patterns are used to "measure the effectiveness of the layout of a web site" by "observing consumers' behavior and analyzing consumers' decision process over the Internet." (Papierniak, Col. 1, lines 44-49). In contrast, Davis discloses the use of a file directory to retrieve pages from a memory. Applicants note that the Court of Appeals for the Federal Circuit has affirmed that to support combining references in a § 103 rejection, evidence of a suggestion, teaching, or motivation to combine must be *clear and particular*, and this requirement is not met by merely offering broad, conclusory statements about teachings of references. *In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). In an even more recent decision, the Court of Appeals for the Federal Circuit has stated that, to support combining or modifying references, there must be particular evidence from the prior art as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed. *In re Kotzab*, 55, USPQ2d 1313, 1317 (Fed. Cir. 2000). Applicants respectfully submit that the Office Action has not provided clear and particular support for why one who is skilled in the art would modify the teachings of Papierniak as to the measurement of web site layout effectiveness, based on observed access patterns, and the teachings of Davis as to retrieval of pages from memory based on a file directory, to obtain the recitations of Claim 1.

Moreover, Applicants respectfully submit that even if Papierniak and Davis were combined, they would not disclose or suggest receiving hints that comprise an indication of anticipated relationships among files, nor would they disclose or suggest using such received hints to allocate storage for files.

For at least these reasons, Applicants respectfully submit that Claim 1 is patentable over Papierniak in view of Davis.

Amended independent Claims 20 and 21 contain similar recitations to Claim 1, and are submitted to be patentable over Papierniak in view of Davis for the reasons explained above for Claim 1.

Dependent Claims 2-19 are patentable as depending from allowable independent Claim 1. Moreover, these claims are submitted to provide separate bases for patentability. For example, Claim 2 recites that the hints, which comprise an indication of anticipated relationships among files, are created by a content management system. The combination of Papierniak and Davis does not disclose or suggest a content management system, and, consequently, do not disclose using a content management system to create such hints that contain an indication of anticipated relationships among files.

Claim 6 recites that the hints, which comprise an indication of anticipated relationships among files, are created by a content authoring tool, and that the hints specify one or more files that are likely to be referenced within a temporal proximity of a reference to a selected one of the files. The combination of Papierniak and Davis does not disclose or suggest a content authoring tool, and, consequently, do not disclose using a content authoring tool to generate hints are recited in Claim 6.

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Filed: January 15, 2002
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CONCLUSION

In light of the above amendments and remarks, Applicants respectfully submit that the above-entitled application is now in condition for allowance. Favorable reconsideration of this application, as amended, is respectfully requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (919) 854-1400.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David K. Purks", with a stylized flourish at the end.

David K. Purks
Registration No. 40,133
Attorney for Applicant(s)

USPTO Customer No. 46589
Myers Bigel Sibley & Sajovec, P.A.
Post Office Box 37428
Raleigh, NC 27627
Telephone: (919) 854-1400
Facsimile: (919) 854-1401